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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,204	03/11/2004	Joan K. Vrtis	42P13111D	7406

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EXAMINER

NGUYEN, TAI V

ART UNIT

PAPER NUMBER

3729

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/799,204

Applicant(s)

VRTIS ET AL.

Examiner

Tai Van Nguyen

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 10/023,073.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/11/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. In regards to the merits of Culnane et al. (US 5,672,548) in the previous Non Final Rejection filed 5/2/2005, the applicants arguments that Culnane does not teach the features of that the step coating a thermally conductive heat spreader body with an organic surface protectant; and coupling the heat spreader body directly to a thermal interface material, the thermal interface material in direct contact with an IC die have been found to be persuasive.

Accordingly, the previous Non-Final-rejection has been withdrawn.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagy et al (US 5,139,973) and Max M. Lee (US 2,700,185).

As applied to claim 1, Nagy et al disclose a method comprising: coating a thermally conductive heat spreader body (30, Fig. 6) with an organic surface protectant (plastic molded material in Fig. 6); and coupling the heat spreader body (30) directly to a thermal interface material (32s), the thermal interface material in direct contact with an IC die (14).

Note: The plastic molded material of Nagy is inherently capable of being a "organic surface protectant" because it covers the surface of heat spreader body and the material of plastic, or molded plastic, is organic. The examiner cited Lee et al. (US 2,700,185) as extrinsic evidence to show that plastic materials are inherently Organic.

As applied to claim 2, Nagy et al disclose the coating step comprises immersing the heat spreader body in a dipping solution comprising the organic surface protectant (see column 3, lines 62-66).

As applied to claim 5, Nagy et al disclose thermal interface material is a solder-polymer hybrid (see column 3, lines 50-56).

As applied to claim 6, Nagy et al disclose the first surface of the heat spreader body (30) is coated with an intervening layer (sheet 20 with adhesive) before coating with an organic surface protectant.

As applied to claim 7, Nagy et al disclose the heat spreader body comprises copper (see column 2, lines 63-65).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagy et al and Lee et al. in view of Beck (US 5, 1 10,494).

As applied to claim 3, Nagy et al as relied upon above disclose all limitations of the claimed invention except the organic surface protectant of triazole compounds. However, Beck teaches the organic surface protectant with triazole compounds (see column 3, lines 24-65). It would have been obvious to one ordinary skill in the art at this time the invention was made to modify the Culnane et al method by including the

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organic surface protectant with triazole compounds, as taught by Beck, to positively provide a material that improves the cleaning surface.

**Conclusion**

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tai Van Nguyen whose telephone number is 571-272-4567. The examiner can normally be reached on M-F (7:30 A.M - 4:30 P.M).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TN.  
November 8, 2005



**A. DEXTER TUGBANG**  
**PRIMARY EXAMINER**